

AMERICAN VETERINARY REVIEW,

JULY, 1887.

EDITORIAL.

MALADIE DU COIT, OR DOURINE.—Its recent importation—has at length reached our shores—brought over by French stallions—adding another contagious disease to the troubles of American horseflesh—Professor Law formerly in doubt as to its presence—no doubts now remaining—many stallions, as well as a number of mares, affected with it—is under investigation by Dr. Williams, Assistant State Veterinarian of Illinois—our translation of Zundel on the subject. **PLEURO-PNEUMONIA.**—With the management of this, added to that of dourine, the Bureau of Animal Industry will have their hands full—the work of stamping it out vigorously prosecuted—Professor Law's good work in Chicago—official veterinarians appointed in the Eastern States—for the first time a chance seems to offer for the extermination of the pest in North America—provided the bureau is unhindered, the appropriation continued, and politics ignored. **DISTILLERY MILK.**—The investigation instituted by *Science*—varying opinions—Professor Law, Drs. Salmon and L. McLean on the subject. **VETERINARY SOCIETIES.**—their rapid formation—their apparent moribund condition—the cause of their inaction—and the wrong of their failure—their duties to the profession. **THE BOULEY MONUMENT**—a last chance to contribute to its erection. **VETERINARY DEPARTMENT OF PENNSYLVANIA UNIVERSITY**—its first catalogue of graduates.

MALADIE DU COIT—DOURINE.—The presence of one more contagious disease, added to the other dangers to which our domestic animals are exposed, is at length officially reported. Dourine, or *maladie du coit*, has made its appearance in the West.

In a conversation with Professor Law, of Cornell University, a few years ago, we asked him if he had ever heard of the existence of this disease in the United States. We were discussing the ever important subject of the importation of contagious diseases, and we then expressed the fears we entertained of the ap-

pearance of dourine as an incident of the importation of French stallions, a business which was at that period becoming one of great importance.

If our memory serves us rightly, he said in reply that he had heard of the presence of some disease which very much resembled dourine, but that no cases of it had as yet come under his personal inspection in this country.

There is now no longer room for any doubts on the subject. Our Western papers mention it, and Dr. W. Williams, Assistant State Veterinarian of Illinois, is busily engaged in investigating an outbreak in De Witt County, in that State. Two *imported* stallions are reported to have died from it, and nine more are now under treatment. It is also said that forty mares have succumbed to the disease, and that some fifteen or twenty others are still affected; and a number of stallions have been subjected to quarantine.

This is an exceedingly important subject, and our friends of the Bureau of Animal Industry have a weighty responsibility devolved upon them. At the present time, when the importation of stallions from beyond the Atlantic has assumed the extensive proportions which it has in fact attained, the duty of protecting the interests both of the importers and the dealers of our great breeding centres becomes pressingly imperative. The disease is of too serious a character, and too fatal in its results, to be ignored, and all stallions brought to our various ports ought to be submitted to a rigid inspection before they are allowed to be distributed throughout the Western States, where, instead of the improvement of our stock, the effect of their presence and employment will be the spread of a disease so widely and fatally contagious as that which they will be sure, in a double sense, to propagate.

We hope Dr. Williams will succeed in making his investigation as thoroughly complete and exact as the importance of the case demands, and that, moreover, he will not fail to recognize the propriety of supplementing his good work by furnishing the REVIEW with a copy of his report for publication, for the benefit of our constituency and any others who may thus become interested and curious in the discussion of the subject.

W
article
will b
their

TH
contai
develo

"J
Bloom
to this
from i
Veteri
disease
taken i
died f
that th
munic
tined,
Many
horses
Live-S
at onc
malad

F
whic
the J
from
whic
with
muc
with
they
cord
wor
cult
eng
whi
In
beli
gan

We begin, to-day, the translation of an excellent and timely article on the subject by the late A. Zundel, which, we believe, will be interesting and instructive reading to all who will give it their attention.

The following extract from the *National Live Stock Journal* contains a succinct statement of the facts of the case as thus far developed:

"Nine Norman stallions from Wapello, De Witt County, are in a hospital at Bloomington, suffering from a curious disease, which is said to have been brought to this country by imported stallions in 1885. Forty mares, it is said, have died from it already, and twenty more are still suffering from it. Assistant State Veterinarian Williams, of Bloomington, has spent some time in investigating the disease, and finds there is a very grave cause for alarm, unless the greatest care is taken in the matter of quarantine. He finds that two imported stallions have died from the disease, that ten are very sick, and some of them will die; also that thirty-five mares have died, and more are affected. This disease is communicated in breeding. It is believed that all the stallions affected are quarantined, and most of the mares. However, it is almost impossible to ascertain this. Many mares bred by affected horses have been shipped away, and bred to other horses, perhaps. Dr. Williams thinks that the most vigilant attention of the Live-Stock Commission and the heartiest co-operation of the people are demanded at once. The imported-horse interests of Illinois are very great, and unless the malady is promptly obliterated the most serious results may follow."

PLEURO-PNEUMONIA.—The presence of dourine and the labor which we believe it is likely to impose upon the veterinarians of the Bureau of Animal Industry, will, of course, not exempt them from the serious task of combatting other and kindred evils in which they are now engaged. The prosecution of their warfare with contagious pleuro-pneumonia must necessarily occupy so much of their time and attention, considering the thoroughness with which their work is carried on, that it must needs be that they have but scant time left to devote to other objects. According to recent reports, notwithstanding this, however, the work is being well attended to, though not without some difficulty, in Chicago, where Professor Law continues to be earnestly engaged, and to be laboring as assiduously as he formerly did while in New York, in the days of General Patrick's commission. In Virginia, in Maryland, in New York, in New Jersey, and, we believe, also in Pennsylvania, the work is now tolerably well organized, and the destruction of diseased and infected animals,

with indemnification of the owners, by appraisement, proceeds systematically under the supervision of the officers of the Bureau.

For once, perhaps, in the history of contagious pleuro-pneumonia in the United States, means seem to be effectively employed to stamp out the evil. With good work under the auspices of the General Government, and able assistance from the State governments, performed by a corps of competent veterinarians, it may be considered that the days of pleuro-pneumonia in the United States are numbered, *provided* the "sinews of war" are supplied by the necessary appropriations of money in sufficiently liberal amounts, and that politics, in the guise and form of Congressional M.D.'s, can be hindered from allying itself with the foe, and is stamped out as resolutely and as promptly as the enemy itself ought to be.

DISTILLERY MILK.—The characteristics of this dietetic material has recently been brought to the attention of the scientific and sanitarian public, and our excellent contemporary, *Science*, has instituted a series of inquiries designed to settle the question whether swill-fed cows are capable of producing good milk for human consumption. The opinions elicited seem to vary as to the results of its employment, and while the general verdict seems to be adverse, there appears to be a disposition in some observers to regard as at least harmless the mode of feeding referred to.

The following quotations from *Science* present the opinions of three veterinarians, who have had ample opportunities for observing the effects of a swill diet and the results which follow its use, on the quality of the milky secretion:

[James Law, M.D., Professor of Veterinary Science, Cornell University.]

Being from home, I cannot profess to answer your questions as to the effects of swill-feeding on milk as I could have done had I been beside my library. I have been accustomed to see brewers' and distillers' grains fed to milch-cows without any noticeable evil effect on the milk. If fresh, these are, in the main, grain robbed of much of its starch and some of its salts. Even when slightly acid from preservation in a closely packed condition, it has not seemed to affect the milk injuriously. It is difficult to see how the same material, ground into a fine farina, and floating in a large amount of water, can be any more injurious, further than as the excess of the water must produce a relative diminution of the solids in the milk. But swill is not always fed in this pure and unchanged condition. As preserved for feeding purposes, it is often found to have undergone not an acid

fermentation
it contains
introduced
given meas
in exact m
chemicals
a mere gen
ence to th
I can easil
and reachi
to the vary
of life of t

[D. E. Salm

As I ha
questions
vestigatio
manner in
also have
eral way
someness
reported t
ical tests
upon cou
dicate in
food, stal
milk prod
ter than c
cate that
scopic org
be more c
minoid c
that cons
observati
value.
to collect

I ha
animals.
atrophy

Ve
able a
among
ing ne
mutua

fermentation only, but even a putrid one as well. In other cases it is alleged that it contains chemical agents of a more or less pernicious nature, that have been introduced with the object of securing a more abundant yield of alcohol from a given measure of grain; and in all such cases the milk cannot fail to be injurious in exact ratio with the baneful nature of the fermentation products, or of the chemicals introduced by the brewer. The question cannot, I think, be settled by a mere general statement of the effects of swill-feeding, but it must have reference to the condition and ingredients of any particular specimen of swill fed. I can easily understand two different observers experimenting at the same time, and reaching diametrically opposite results, because due regard has not been paid to the varying condition of the swill as it was fed, and the different conditions of life of the animals consuming it.

[D. E. Salmon, M.D., Chief of Bureau of Animal Industry, Department of Agriculture, Washington, D. C.]

As I have not the exact data at hand which would be needed to answer your questions properly, I prefer to write you a short letter on the subject. In my investigations of animal diseases, I have frequently had occasion to observe the manner in which cows are stabled in sheds where distillery refuse is fed, and I also have quite a clear idea of the way in which the milk is handled. In a general way I have watched the discussions of sanitarians in reference to the wholesomeness of milk produced in this way. In some cases, at least, chemists have reported that milk from cows fed upon swill was equally rich, and, from chemical tests, was as good as, and even better than, milk produced from cows fed upon country pastures. It is extremely doubtful whether such tests as these indicate in any degree the wholesomeness of such milk. From the nature of the food, stables where swill is fed are much more difficult to keep clean, and the milk produced in them is contaminated with more filth and foreign organic matter than ever should be the case in properly kept milk stables. This would indicate that such milk would undergo changes from the multiplication of microscopic organisms more rapidly than other milk, and that dangerous germs would be more apt to find their way into it. Some sanitarians contend that the albuminoid constituents of swill milk coagulate more firmly than in other milk, and that consequently it is much more difficult to digest. I have made no personal observations in regard to this, and therefore can give no personal information of value. The question is certainly an important one, and I hope you will be able to collect information which will clear up some of the disputed points.

[L. McLean, M.R.C.V.S., Brooklyn, N. Y.]

I have frequently made post-mortem examinations on the carcasses of such animals. The digestive organs of cows so fed are, as a rule, in an anæmic and atrophied condition.

VETERINARY SOCIETIES.—Not very many months ago, a noticeable and promising movement seemed to have been initiated among the veterinarians of the United States, and we were hearing news from every quarter of the organization of societies for mutual edification, discussion, and the like; and occasionally it

even became our agreeable duty to print the "transactions" of these learned bodies in the *REVIEW*, for the benefit of our readers and whosoever might care for the discussion of the interesting topics which were offered for elucidation, in the form of original papers, reports of cases, and the like. For the last few months, however, we have heard no tidings from these societies. What is the cause of this silence? Has the interest of their membership in questions of veterinary theory and practice subsided? Have the meetings failed in their numerical attendance, and has consequent dullness supervened? Have they died as rapidly as they were born? In fact, has their mortality exceeded their fecundity? Where shall we look for an answer? Whatever may be the cause of the silence maintained by these State and county associations, it is much to be regretted that the good which might have been anticipated from their active existence and from the publication of their debates and reports, has not been realized. It is from sources such as these that the veterinary profession of America, as it now exists, must derive the material and the stimulus of its honorable existence; and if it is to be well appreciated by the public here, or obtain recognition elsewhere in the world, it must thus cultivate itself and assert and maintain its right to be, and its power to make itself felt.

We sincerely hope that this condition is not of a permanently lethargic nature, and that their speedy waking up will be quickly followed by a new life and revived activity, and a consequent praiseworthy acceleration in the scientific progress and achievement which will result in advancing the profession in the estimation of the people to a point not before dreamed of, though by no means unattainable.

BOULEY'S MONUMENT.—Our French contemporaries announce the approaching expiration of the term fixed for the receipt of the subscription inaugurated throughout the world for the erection of a monument to commemorate the memory of the greatest veterinarian of the age, the late Henry Bouley. In response to our invitation, American veterinarians have, to an estimable extent, proved their appreciation of the project, and the American subscribers will be represented by a comparatively respectable

contrib
all that
portuni
who ha
offering
the Fro

VET

VANIA-
mencer
inary I
were u
followi

Ch

Richar
Montg
William

Th
ress, c
equine
tion.
but is
geria,

Fr

to spre
diseas
distric
simila
simila
charac

* T

contribution. But is the amount that has already been forwarded all that is to be placed to our credit? We improve this last opportunity to refresh the minds of our friends, and to urge those who have intended—but also delayed—to give, to hand in their offerings at once, in order that we may remit the final balance to the French committee, and close the account.

VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.—We have received a kind invitation to attend the commencement exercises of the first graduating class of the Veterinary Department of the University of Pennsylvania, which we were unable to accept on account of absence from the city. The following ten gentlemen form the graduating class of 1887:

Charles M. Cullen, Hiram P. Eves, Simon J. J. Harger, Richard W. Hickman, Charles Lintz, Edgar Marlin, William B. Montgomery, John F. Vandegrift, Richard G. Webster, Charles Williams.

ORIGINAL ARTICLES.

MALADIE DU COIT—DOURINE.

BY A. LIAUTARD. *

The disease bearing this designation is insidious in its progress, complex in its nature, (affecting breeding animals of the equine and asinine species), and contagious by the act of copulation. It has been known only since the end of the last century, but is now common in Russia, Bohemia, Hungary, Prussia, Algeria, Syria, and France.

From the peculiarity of its mode of contagion, it is not liable to spread to other countries, in the manner of other contagious diseases, and being, on that account, strictly limited to breeding districts, it is not really an epizootic. It has been wrongly assimilated to human syphilis, but the analogy is limited to the similarity of its causes and of some of its symptoms, and to its characteristic lesions, for it is never known to possess the charac-

* Translated from A. Zundel.

ter of the syphilitic chancre. It has often been confounded with other simpler affections, generally of a benignant kind, which are also communicable by copulation, but it differs from these in the fact that they are unknown to the equine family, though they are also met with in the bovine, asinine and canine families, and are never accompanied with general symptoms as serious as those of dourine.

History.—Nothing was known or even suspected of this affection until about the close of the eighteenth century. It seemed to be scarcely known in Russia or in the eastern countries. The first description of dourine dates in 1796, and is contributed by J. Ammon, who observed it in the horses of Frakehnen, in northern Prussia, where the disease existed until 1807. From that period it was observed in Germany, at various times and by various authors: by Waltersdorf, in the district of Bromberg, in 1815; by Havemann, in Hanover, from 1817 to 1820; by Naumann, at Frakehnen, from 1817 to 1818. In 1833 and 1839 it reappeared in Pomerania, where it was observed by Haxthausen, in 1840, and was mentioned by Rodloff and Hertwig in Silesia, and from that point its reappearance was prevented by a resort to severe sanitary measures. In 1821 the first description of the disease appeared in Austria, where it prevailed in Bohemia and Styria, and was described by Strauss and de Hayne. Since that period the disease has reappeared several times in that country, principally in 1826, 1827, and 1828. It was studied by Erdelyi, in 1835 and 1836, and in 1846 by Pillvax, and again in 1859 and 1862, by Marisch. From Russia, where the disease is frequently seen, there are but tardy notices, coming from Renner in 1843, from Kersting, and more recently from Busse (1857) and Jessen (1859).

It was first observed in western Europe in 1830, where it received its earliest mention in Switzerland (by Wirth and Kychner), and later in France (by Dayot and Lantour). A few cases are also mentioned in Wurtemberg by Hering. The disease is yet unknown in England, Belgium and northern France, while, on the contrary, it is frequent in southern France and Algeria. Information respecting Spain and Italy is lacking.

Signal first observed it in Algeria in 1847, where it prevailed fatally in some tribes, and seemed then to have been known by the Arabs for a long time. They gave it the name of *el dourine*. In 1851 and 1852 the breeders of southern France suffered from it, and it was then studied by Delafond, Louchart, Ivart, Ranch and Lafosse. Its next appearance was in 1861, when it was imported by stallions bought in Syria.

In these different outbreaks the disease has varied in severity, according to climate or season, and even the temperament and constitution of the patients; but it has always retained its typical character and symptomology.

Symptoms.—The disease presents both *local* symptoms, affecting the generative organs, and those of a *general* character, which are principally nervous, always accompanied, however, by the infectious feature, and it is according to the predominance of one or the other of these characters that the disease has received the designation of either the *benignant* (or *eruptive*) form or the *malignant*, which latter is the more severe and serious of the two. The symptoms vary according to the sex of the patient.

In the mare, where the disease often remains local, its existence at the beginning is betrayed by the symptoms of ordinary catarrh. The vagina becomes tumefied, and its products of secretion are increased; and a discharge, serous at first, but later becoming cloudy, thick, white or reddish-yellow, escapes from the vulva, which soon becomes puffy or hard from œdematous infiltration. The lips of the vulva are sometimes flabby, and at other times of a yellowish-red color, while again they may form hard and slightly unctuous ridges. The vaginal mucous membrane becomes infiltrated and discolored, varying from red to a purple hue, and the superficial capillary blood-vessels are often seen engorged and projecting, principally towards the vulvar opening, or the fossa navicularis, and about the clitoris. Small epithelial vegetations have also been observed.

Vesicles, varying in size and containing a yellowish liquid, are found upon the vulvo-vaginal mucous membrane, which in bursting give rise to superficial ulcerations, sometimes covered with a yellowish exudate, and sometimes with scabs, which cicatrize

slowly, but easily. In other cases, instead of vesicles, there are white spots, of very small size, and arranged in groups, which seem to be caused by the tumefaction of the follicles due to the exaggerated proliferation of the cells (Maresch). Rodloff considers this species of tubercle to be the most serious form of the disease. Sometimes the ulcerations are deeper, with a diphtheritic exudate, with infiltrated edges, paler, and of bad appearance (Roell). The cicatrization is very slow, and leaves after it thick, cordiform, starry cicatrices. Analogous losses of substance are also observed on the mucous membrane of the uterus. All these ulcerations secrete a liquid, more or less ichorous, which keeps up the vaginal discharge, which is ordinarily very abundant and of an ugly aspect. If it continues but a short time, it adheres to the edges of the organs and forms yellow, brown or reddish crusts. The tail and the hind legs become smeared and foul, and are at times even excoriated by the irritation it produces. When the disease is of some standing, the secretion is no longer thrown out regularly, but collects in the vagina and uterus until it is expelled by violent efforts at the time of micturition.

As has been already said, the disease in mares often remains local. In these instances the general condition is not ordinarily altered, though in rare cases there is a certain uneasiness, a continual agitation of the tail, and frequent attempts to urinate, etc. The appetite remains good, and the respiration and circulation continue normal. Hertwig and Lafosse have, however, observed abortions in the first month of gestation.

In mares of good constitution, the disease often remains stationary in the condition described, and there are no general symptoms. Complications, and especially those of paralysis, are rare in lymphatic and plethoric habits, while they are common in well-bred and nervous animals. While in the former the disease subsides in a few weeks—seldom lasting more than three or four months—in the latter it may continue as long as from six to eight months, and is commonly fatal. In stallions it may continue for years, but its duration is never so protracted in mares.

In cases where the disease has become complicated and the general symptoms have appeared, the vulva may assume a larda-

aceous
its sen
lowish
ing pa
color v
escape
muscu
the th
tact.
oedem
ities;
readily
which
appear
should
tremitt
width
tinuini
they a
points

A
only i
discha
farcy,
always

A
immo
is a m
at res
and w
difficu
assum

W
eral
troub
tinuini
tion,

aceous consistency, become rough to the touch, and partially lose its sensitiveness. The vaginal membrane has then either a yellowish color, or, as often occurs, a bluish or marbled tint, becoming pale when pressed between the fingers, but soon resuming its color when the pressure is relaxed. The vaginal discharge, which escapes in a mass when the patient coughs or makes any violent muscular effort, irritates and excoriates the inside of the legs and the thighs, or any portion of the skin with which it comes in contact. The ulcerations are always deep. There is often a passive œdema of the abdomen, and on the perineum and on the extremities; and around the anus a swelling of the skin occurs which readily forms into an abscess. There is often subacute mammitis, which also ends in suppuration. At this time there is also an appearance of well circumscribed tumors on the body, at the shoulder, neck, chest, abdomen or hip, and less often on the extremities. They are rounded or flattened in form, and vary in width. These tumors are situated in the dermoid structure, continuing for one or more weeks, and disappearing by degrees as they are succeeded by others which show themselves at other points. These seldom suppurate.

A tumefaction of the lymphatic glands is often observed, not only in the inguinal, but in the maxillary region, and there is a discharge from the nose which simulates that of glanders and farcy, but is neither of these diseases. Weeping from the eyes always occurs.

About this time the nervous symptoms appear. Epilepsy and immobility have been mentioned, but the most common affection is a more or less complete paralysis of the hind quarters. While at rest, the animals move frequently from one leg to the other, and when in action they drag the legs, and evidently find great difficulty in moving forward. The dog-sitting position is often assumed.

When paralysis occurs, or even on the appearance of the general symptoms, there seems to be an improvement in the local troubles; but this is only of temporary duration, the disease continuing to progress and being accompanied by extreme emaciation, the paralysis extending forward, attacking an ear and one

side of the face, and bringing on a condition from which the animal never recovers—a metastatic pneumonia, an extensive arthritis and a purulent infection soon converting the suffering patient into a subject for a post-mortem.

(*To be continued.*)

GLANDERS.

BY VETERINARIUS.

A Contribution for the Prize offered by the U. S. Veterinary Medical Association for Papers published in the AMERICAN VETERINARY REVIEW.

(*Continued from page 114.*)

IMPORTANCE OF GLANDERS BACILLI AS AN AID IN DIAGNOSIS.

The diagnosis of glanders is an easy matter when the visible phenomena are present in *optima forma*. The whitish-green and viscid secretion flowing from one or both nasal cavities and drying in a thin yellowish crust on the *alæ nasi*; the presence of irregularly colored ulcers with a yellowish lardaceous base and tumefied circumferences in those parts of the nasal mucosa which are open to clinical observation; the irregularly swollen condition of the inter-maxillary glands, with their frequent adhesion to the neighboring osseous tissue, the ulcerations of *farey* and the indurated lymphatics leading from them to the corresponding lymph glands; the swollen condition of one or more limbs, and, in stallions, sometimes of the testes; the rough appearance of the hair; the short, painful respiration which frequently occurs, and the emation so often present, are all symptoms which cannot escape the attention of anyone at all initiated in the phenomena of this dreaded equine malady.

In other cases, however, it often happens that this whole group of symptoms may be almost entirely absent, or only one or another may be present in a manner not conducive to the excitement of grave suspicions. Horses are frequently seen in which the nasal secretion is very slight and no ulcerations can be seen on the nasal mucous membrane; or, there may be an ulcer on the skin which shows no tendency to cicatrization, but without the cord-like conditions of the lymphatics being present; or, there may be the least

interference in the respiratory phenomena, which are rendered more susceptible by pressure upon the larynx, and coughing the animal. It is exactly such cases which most frequently contribute to the extension of glanders among horses, and extension of the disease to unsuspecting human beings.

Other diseases than glanders give rise to a more or less profuse nasal secretion, such as chronic inflammatory conditions of the nasal cavities or the sinuses of the head, diseased molars, and necrotic processes, as sequelæ of strangles.

Haubner proposed that trepanation of the capital sinuses be resorted to as an aid to diagnosis of such questionable cases, as well as the excision of an indurated submaxillary gland, auto-inoculation, or the inoculation of another horse, or some susceptible animal. As to trepanation, it is seldom that it leads to the desired result. More is to be expected from the examination of an excised gland; but as the characteristics of glanders are also frequently wanting, too much reliance cannot be placed upon this procedure. Auto-inoculation, or the inoculation of a suspected animal with its own secretion, is open to less objection; but no correspondence in the reports of authors is found regarding this; it is based on the theory that the animal having the disease does not render it immune to the eruption of secondary ulcerations when being thus inoculated.

The results of such experiments have been summed up by Roell, of Vienna, as follows: "The proposal of auto-inoculation for confirmation of the diagnosis in glandered horses gives only inconstant results, and has often disappointed me in cases where there was no doubt of the existence of glanders in the animal experimented upon."

The only sure means of diagnosis is the demonstration of the bacilli of glanders by means of cultivations of blood-serum and potatoes, by coloring with methyl blue, and by inoculations upon guinea-pigs or field mice, as has been previously described. I recently examined the lungs of an animal that died from rupture of the diaphragm. A few isolated tubercles were present in the lungs; they were of a whitish color. I examined them for the bacillus of tuberculosis, but did not find anything; but on stain-

ing with methyl blue and using an alkali, I was able to demonstrate the presence of glanders bacilli, proving that the tubercles were not those of tuberculosis.

DO EXPERIMENTS WITH PURE CULTIVATIONS OF GLANDERS BACILLI CONFIRM THESE STATEMENTS AS TO THEIR LOSS OF VIRULENCE UNDER SIMILAR CIRCUMSTANCES?

The following experiments were made: Silk threads were sterilized by exposure to a temperature of 150° C. for half an hour; they were then impregnated with material containing the bacilli, and these rapidly dried on a glass plate and placed in properly closed sterilized tubes until ready for use.

Material taken from the spleen of a field mouse or a purulent degenerated lymph-gland of a guinea-pig, became sterile in the course of a few days. Cultures upon blood serum or potatoes rubbed up in bouillon was used to saturate silk threads, which were then dried, retained their activity longer, though the period was somewhat varied. They developed actively after such treatment for four days; after eight days but few developed, while after three weeks' drying on the threads they had lost all activity.

A special experiment proved very interesting on account of the long time the desiccated material retained its activity. It was as follows:

A tube, filled with stiffened blood serum, was sown with a cultivation of the eleventh generation, and placed in a thermostat having a constant temperature of 37° C. On the seventh day it lost its transparency, and appeared whitish, with non-reflected light. The cultivation was removed from the surface of the serum with a sterilized platinum needle and placed in the fluid at the bottom of the tube, where it was held in suspension; a number of sterilized silk threads were then placed in this fluid for some hours, when they were taken out, placed on a glass plate and rapidly dried, and when dry placed in a glass tube for safe keeping. Two field mice inoculated with them died three days afterwards of glanders.

Two field mice were subjected, from time to time, to inoculation with these threads, the interval being longer and longer. The diagnosis in each case was made by coloring the material and

microsc
experi

Tw
of typi

Tw
died—th
glander

Tw
first on

Af
of glanc

Af
of glanc

Af
of glanc

Af
second

Af
ond on

Af
ond on

Af
ond on

Af
Af

T

ba

biolog

It

by th

know

cours

nasal

vario

it can

mater

dried

is stil

moist

T
ing th

microscopical examination. The following is the course of these experiments :

Two field mice, inoculated with freshly-dried material, died on the 4th day, of typical glanders.

Two field mice, inoculated with the same material, after 4 days' desiccation, died—the first on the 3d day, of glanders; the second on the 6th day, of glanders.

Two field mice, inoculated with material dried for seven days, died—the first on the 3d day, of glanders; the second on the 4th day, of glanders.

After 10 days' drying, two more inoculated. The first died on the 4th day, of glanders; the second on the 5th day, of glanders.

After 13 days' drying, two were inoculated. The first died on the 6th day, of glanders; the second on the 7th day, of glanders.

After 17 days' drying, two were inoculated. The first died on the 4th day, of glanders; the second on the 6th day, *not* of glanders.

After 20 days' drying: The first died on the 2d day, *not* of glanders; the second on the 6th day, of glanders.

After 28 days' drying: The first died on the 3d day, of glanders; the second on the 4th day, of glanders.

After 32 days' drying: The first died on the 3d day, of glanders; the second on the 4th day, of glanders.

After 40 days' drying: The first died on the 4th day, of glanders; the second on the 5th day, of glanders.

After 60 days: Both died on the 4th day, of glanders.

After 89 days: One inoculated died on the 5th day, of glanders.

After 715 days: Four threads sown on potatoes; no development.

These experiments demonstrated, beyond doubt, that glanders bacilli that have been dried for three months may retain their biological activities.

It is not necessary to assume that permanent spores are formed by these bacteria, as others which do not form spores have been known to retain their activity for the same period under a similar course of treatment. When it is taken into consideration that the nasal secretion of glandered horses contains micro-organisms of various kinds, and that fermentive processes almost always occur, it can be understood why numerous experiments made with this material have given negative results. If, as has been shown, the dried bacilli do not retain their activity for over three months, it is still possible that they may retain action longer in the warm, moist air of stables.

This supposition can also be tested by experiment, by observing their conditions on different media after the lapse of varying

periods. A great number of cultivations were further inoculated after having been in the thermostat for from one to four months, and old cultures all proved to have died out. Those one hundred days old developed sparsely, as well as those of ninety, eighty, seventy, sixty, fifty and forty days. Cultivations of four weeks developed in tolerable quantities, but unevenly upon blood serum and potatoes isolated colonies were generally observed. Cultures of from fourteen days to three weeks showed normal properties. It can therefore be seen that these bacteria do not retain their activity long, even when placed under favorable conditions to their continued development.

ACTION OF DISINFECTING AGENTS UPON GLANDERS BACILLI.

Heat is among the best of these; its destructive action on the infectious material from glandered horses has been well known for a long time.

Bourgelat subjected purulent glanders material to distillation; product and refuse both inactive.

Abildgaard and Viborg found the same material inactive after being heated to 45° C.

Renault cooked it with the same result. Dr. Loeffler's experiments upon pure cultures of glanders bacilli were followed by the same experience; all cultures, whether the bacilli demonstrated an uncolored sporoid centre or not, proved inactive after being cooked once.

A potato cultivation which had developed at a temperature of 38° C. for a period of seven days, was rubbed up with a certain quantity of freshly distilled water until it became quite apalescent; 5 ccms. of this material was then placed in a number of sterilized test tubes, when each was placed in a water bath, at 50°, 60°, and 70° C., for ten minutes. On being taken out, some sterilized potatoes were immediately inoculated from them, while others were sown from the non-heated sterilized mixtures in other tubes. After the lapse of three days, the potatoes which had been sown from the non-heated tubes and from that heated to 50° C., were covered with an amber-colored mass, while the others remained free from any development. This experiment was re-

peated with material prepared in the same manner that had been heated to 52° and 55° C. At the latter temperature the bacteria were found to have been killed, while at the former they retained more or less activity.

The subjection of glanders bacilli to a temperature of 55° C. is sufficient to kill them. This is the same temperature that kills anthrax bacilli which are free from spores.

Chlorine gas and carbolic acid have been recommended as the most trustworthy germicides.

Gerlach mixed four grammes of the nasal secretion from a glandered horse with fresh chlorine water, and after two hours inoculated a healthy horse with the same. Result negative. A piece of the septum nasi, covered with ulcerations, was placed by the same authority in a solution of carbolic acid, 1 to 24 parts of water, for 30 hours; inoculation negative. He also placed freshly cultivated nasal secretion in the same mixture for only a few minutes, and on inoculation the result was negative.

Reynal produced similar results with chlorine. Peach and others give similar testimony.

Dr. Loeffler experimented with carbolic acid, corrosive sublimate, chlorine water, and permanganate of potash. The material used was four-days-old cultures of the bacilli upon potatoes which were rubbed up with a solution of meat-infusion-peptone. Sterilized silk threads were impregnated with this fluid, and soon as they were dry and ready for experiment. The disinfecting fluid was placed in sterilized crystallization vessels to the amount of 20 to 30 ccms.

Experiment No. 1.—A number of such threads were placed in a 2 per cent. carbolic acid solution, and the same number in a 5 per cent solution. After the lapse of 2, 5, 10, 20, 30 and 40 minutes, they were removed and washed in distilled water and placed upon potatoes; the same being done with saturated threads that had not been so treated. After six days the last were seen to be surrounded by a yellowish-brownish covering, as were also those which had been subjected to the action of the 2 per cent. disinfectant. The development of those placed for 2 minutes in the 5 per cent. solution was not so prolific as was the case with

threads left in the 2 per cent. solution for five minutes. Threads left for five minutes in the 5 per cent. carbolic solution, and for ten minutes in the 2 per cent., yielded a few isolated colonies. All others remained sterile.

Experiment No. 2.—Somewhat thinner threads were placed in a 3 per cent. carbolic solution, where they remained for 2, 5, 8, 10, 15 and 20 minutes. After seven days' observation they still remained inactive. Isolated colonies developed on a few of those exposed for two minutes.

The exposure of purely cultivated glanders bacilli to a 3 or 5 per cent. solution of carbolic acid is enough to destroy them when in thin layers.

Similar threads exposed to a 1 per cent. solution of permanganate of potash for two minutes, give negative results on potatoes.

Chlorine water, containing 0.23 to 0.16 parts chlorine, killed the bacilli after two minutes' exposure.

Corrosive sublimate is very deadly to these bacilli in from 1 to 5 per cent. solutions. Even 1-2,000 and 1-5,000 solutions gave satisfactory results; two minutes' exposure to the latter solution was sufficient to prevent any development, which is strong enough for all practical purposes.

TENACITY OF THE INFICIENS OF GLANDERS.

Many observations on this point have been recorded. Text books often contain such statements as the following: That in infected stables in which glandered horses have stood for a variable length of time, healthy horses have soon become glandered after being placed in them; even in cases where they have been empty for four, six, eight, twelve or even eighteen months.

If such statements could be depended upon it would be necessary to assume that the bacilli of glanders developed permanent spores, which can only retain their activity under such circumstances. Satisfactory evidence of such assertions cannot be found in veterinary literature, and they are directly contradicted by experiments as to the tenacity of these bacilli.

Viborg seems to have been one of the earliest observers to give attention to this important subject. He says:

"I
the air
confor
Experi
effect.

Th
able ca
nine, a
Go
in infe
worn l

Re
produc
the ac
were p
negati

Re
tion—
sult th

Go
lowed

Go
infect
It
desicc

THE
REPO
ST
TA
DI

B
call a
Roya

"If you dry glanders material at the ordinary temperature of the air, either in summer or winter, or in an artificial temperature conforming to that of summer, it soon loses its infecting activity. Experiments with such material in over one hundred cases had no effect. Even subcutaneous inoculations gave negative results."

The material used by Viborg was taken from an unquestionable case of glanders in a horse, and had been treated for eight, nine, and fourteen days.

Gohier seems to have been more successful, for he succeeded in infecting a mule from a harness that a month previously was worn by a glandered horse.

Renault soiled eight halters and blankets with the virulent products of an acute case of glanders, and then exposed them to the action of the atmosphere for twenty days, after which they were placed on the same number of healthy horses. Results negative.

Renault and Bouley inoculated a horse with the nasal secretion—that had been dried six weeks—of a glandered horse; result the same.

Gerlach spread the same secretion on a plate of glass and allowed it to dry; how long not mentioned. Result negative.

Galtier came to the conclusion that glanders material lost its infectiousness after being well dried for fifteen days.

It is thus seen that all three authors agree in asserting that desiccation destroys the inficiens in glanders material.

(To be continued.)

THE ETIOLOGICAL MOMENT IN AMERICAN SWINE PLAGUE.

REPORT OF THE WORK DONE IN THE LABORATORY OF THE
STATE UNIVERSITY OF NEBRASKA FOR THE EXPERIMENTAL
STUDY OF CONTAGIOUS AND INFECTIOUS ANIMAL
DISEASES.

(Continued from page 137.)

Before considering Hueppe's hypothesis further, I desire to call attention to the organism described by Prof. Schuetz (of the Royal Veterinary School of Berlin) in the "Arbeiten, a. d. Kaiser-

lachen Gesundheitsamte, Berlin, 1886," though it was first seen and partially described by Loeffler in 1882, but Schuetz has the credit of establishing its connection with the German swine plague beyond dispute.

The discovery of Schuetz is of much importance and interest to us in the United States, because of the exact morpho, and cultivatio-morphological and biological resemblances; in so far, actual identity between the organism described by him, and the one described by Detmers in 1880, and independently discovered by me, and unquestionably proved to be the sole and direct cause of swine plague proper in this country, have been proven by inoculations with pure cultivations obtained by the most exact methods of bacteriological investigation.

Schuetz says: "The bacteria of the German swine plague have an oval form, and are very easily colored in methylen blue, gentian violet, etc. When colored in a solution of gentian violet they show an uncolored space in their center which is surrounded by a layer of colored substance. The quantity of this colored substance is greater at the poles of the organism, so that its ends appear more strongly colored than the middle part. When strongly colored they appear of a homogeneous blue.

"As these objects occupy an intermediate position between micrococci and bacilli, they should be looked upon as bacteria.

"They are 0.0012 mms. and 0.0004 to 0.0005 wide; their length is from one-third to one-half that of the diameter of red blood-cells of the mouse.

"They proliferate as follows:

"At first they increase in length and become about double as long as wide, and have distinctly rounded ends, and color in the same manner as the micro-organism in septicaemia in rabbits, so that from a third to a half of the body presents itself as an uncolored space between the distinctly colored ends. More exact observation shows that the colored ends are connected together by a band of the same substance extending along the sides of the organism.

"The ends become separated from one another by the disappearance of the middle piece. They at first appear round, but

soon assumed
opened from

"W
the case
attain the
ly that t
Under t
which is
generati
oval and

"W
observes
lie in g
ment in
so that t
punctifo
develops
gelatine.

"Th
p. 383, l

It ca
parently
deportm
phologic

Schu
tion with
bits, whi

His r
the Germ

For

"On
time twe

"On
time fort

"On
time fort

"On
18—time

soon assume an oval form, consequently two individuals are developed from each organism by fission.

"When this process proceeds rapidly, as we have found to be the case within the porcine organism, the microphytes do not attain the above given dimensions, but divide themselves so rapidly that the uncolored middle piece cannot always be distinguished. Under these conditions the successive generations become smaller, which is to be attributed to slower development. The younger generations are often exceedingly small, but are still distinctly oval and color profusely."—p. 380-81.

"When inoculated upon meat infusion, peptone-gelatine, one observes the development of numerous white points which either lie in groups or isolated colonies. The points gradually augment in size until they coalesce with those in immediate proximity, so that the inoculated puncture appears as a homogeneous line with punctiform excrescences along the sides. A grayish-white wall develops around the point of inoculation upon the surface of the gelatine.

"The organism does not cause the gelatine to become fluid." p. 383, l. c.

It can be readily seen that this micro-organism of Schuetz apparently—exactly—corresponds to the one described by me in its deportment in gelatine, and exactly in its microscopical and morphological appearances when stained.

Schuetz received fatal results in twenty-four hours, by inoculation with pure cultures in mice, and in two or three days in rabbits, which correspond nearly enough to my experiences.

His results in swine do not correspond with my experiences, the German organism appearing to be much more virulent.

For instance:

"One pig five months old, inoculated June 26, died June 27—time twenty-four hours.

"One pig five months old, inoculated June 26, died June 28—time forty-eight hours.

"One pig five months old, inoculated July 12, died July 14—time forty-eight hours.

"One pig five months old, inoculated January 16, died January 18—time forty-eight hours.

"One pig three months old, inoculated February 5, died February 14—time nine days."

(This last was an aspiration experiment with spray from a bouillion cultivation.)

I have not been able to produce fatal results in less than four days, and then, only in one case. A five months' old healthy pig inoculated with a portion of the spleen of the most severe case of natural infection that I have yet met with—according to the lesions—died on the twentieth day after inoculation.

In this connection it may be well to mention that the outbreaks of swine plague in Nebraska have been unusually mild the past year, and also to again repeat that the same germ from different outbreaks differs much in virulent activity. * * * *

On the 27th of November I visited an outbreak of swine plague at Valparaiso, Neb., which was of a most severe type, and, so far as necroscopical investigation extended, was characterized by pulmonary complications, and those of the lymph glands and chief parenchymatous organs.

The intestines were entirely free from any ulcerative or neoplastic products.

The micro-organism from these hogs was the same as found in every other outbreak I have visited, and was also of a very malignant character. A perfectly healthy pig five months old was inoculated in the abdominal cavity with six fluid grammes of a sterilized peptonized bouillion cultivation of this germ and died in about twenty-four hours, I must admit totally unexpectedly on account of previous experiences. Its blood and spleen were found to be swarming with the specific organism.

There was not a single serious organic lesion in the animal with the exception of the lymph glands, which were much swollen, moist and full of hemorrhages, which gave to the cut surface the same appearance as is seen in a large strawberry when cut in two.

I do not yet know whether this peculiar appearance of the lymph glands, as seen in all acute, or severe cases, of swine plague, can be considered as really pathognomonic to that disease or not, as I have not had sufficient experience in other porcine maladies

to vent
a very

Sinc

by my

I have

prepare

nouncer

firm, op

also sta

vincing

I wi

value of

other ob

The

1. T

tant of

Cha

(a).

gland.

(b).

This

sions ac

2. T

parently

man dis

the dise

My

conclusi

"N

phytes

first cap

may acc

the lun

finally,

At

tion: a

dred.

to venture an opinion. Should it prove to be true, it will become a very valuable diagnostic condition.

Since the reading of a preliminary announcement of my work by my assistant, Dr. Bowhill (*American Veterinary Review*, l. c.) I have made more experiments and observations, and am now prepared to make some radical, and perhaps seemingly ultra, announcements, which I am positive future investigations will confirm, opposed as they are to commonly received opinions. I will also state that these conclusions will be supplemented by convincing experimental and clinical proof in future papers.

I wish also to say that I have been decidedly misled as to the value of anterial lesions in swine plague, by the publications of other observers and writers.

These conclusions are :

1. That the American swine plague is, first—the most important of all—an extra organismal infectious septicæmia.

Characterized :

(a). By a peculiar swollen hemorrhagic condition of the lymph gland.

(b). By pneumonia of a peculiar character.

This is all the American swine plague consists of; other lesions accompany it, but are not essential to it.

2. That the only and genuine swine plague is caused by, apparently, the same germ as that discovered by Schuetz in the German disease; and, if the natural characteristics are the same, that the diseases are identical.

My conclusions are largely supported by the observations and conclusions of Dr. Detmers, who says:

“No matter in which way, or by what means, the schizophytes enter the animal organism and get into the blood. The first capillary system to which they come is the lungs, which may account for the fact that, in swine plague, morbid changes in the lungs, consisting of exudation, extravasation of blood, and, finally, hepatization, are never absent.”

At least I have found them in every post-mortem examination: and in the last three years I have made about three hundred.

"Dr. James Law, of Ithaca, N. Y., (in his report to the Commissioner of Agriculture) records the lungs of some of his experimental pigs as 'healthy,' 'sound,' 'normal,' etc., which simply shows that the pigs were not affected with swine plague, and did not die of that disease.

"It may also be mentioned in all cases of swine plague most of the lymphatic glands are more or less enlarged, and that comparatively more schizophytes can be found in them than in any other part of the animal body."—*American Naturalist*, vol. 16, p. 301.

3. Swine plague proper is a strictly infectious disease, and not a contagious disease in any sense of the term.

4. That the so-called "characteristic" ulcerative and neoplastic conditions, so frequently found in the large intestines in swine plague, are not necessary complications in that disease; and, hence, are not pathognomonic to it.

(That is, they do not form the pathological ends of American swine plague.)

5. That death can be induced in healthy swine by inoculating them with an extra quantity of very virulent virus, without there being an essential lesion present other than those in the lymph glands, and more or less ecchymotic hemorrhage.

(In such cases the animals die of an infectious septicæmia only.)

6. That those cases of swine plague which are characterized by an intense choleric discharge are more frequently free from the so-called "characteristic" ulcerative lesions in the large intestines than complicated by them.

7. That the cases characterized by the so-called "characteristic" intestinal lesions are more often accompanied by constipation until the last stages, than by diarrhœa.

8. The choleroïd discharges are, in reality, those generally accompanying the last stages of septicæmia; and, hence, are not dependent upon ulcerative lesions in the intestines.

9. That the term "hog cholera" is a misleading misnomer, and that the disease is really a septicæmia, with the lesions in the lymph glands and lungs as its peculiar characteristic, but also

accom
chief
standi
lesions
organ
case o
of a y
In
(phthi
Roloff
belong
occur

As
sence
that I
with A
monic
cases
As sai
perien
which

It
clined
senche
which
that th
rect, t
do. I
and ex
or lym
by me
lymph

Th
a bron
but ev
lymph
swolle

accompanied by the usual acute parenchymatous process in the chief organs in the body, liver, spleen and kidneys. Notwithstanding the fact that Law and some other observers report no lesions in the kidneys, every competent observer will find those organs the seat of acute parenchymatous disturbances in every case of natural infection; the cortex being opaque, anæmic and of a yellowish-gray color.

In a brochure entitled "*Die Schwindsucht bei Schweinen*" (phthisis in swine), 1875, under the heading "*scrofulous enteritis*," Roloff has described lesions in the large intestines which he thinks belong exclusively to that disease, but which, as will be seen, also occur in American swine plague.

As can be seen by reference to Dr. Bowhill's paper, the absence of these lesions in Schuetz's autopsical report was the reason that I then doubted the identity of the German swine plague with American. I then held skeptical views as to the pathognomonic value of these lesions from missing them in the majority of cases of natural infection upon which I had then made autopsies. As said previously, both experimental and field necroscopical experiences have since confirmed my skepticism more strongly; of which more in another paper.

It would be unjust to the facts not to say that Hueppe is inclined to look upon these lesions as belonging to the "*wild-senche*" in German swine, and hence to the German swine plague which he claims to be identical with that disease. It would seem that this question must be settled in Germany, as, if Roloff is correct, they seem to have more phthisis among their swine than we do. It must also be remarked that Roloff, who was a most dry and exact observer, does not describe a single lesion in the lungs or lymph glands that has been described by others, or as yet seen by me in American swine plague. He invariably speaks of the lymph-glands as "*enlarged, but full of caseous centers.*"

The pneumonia of the American swine plague is invariably of a bronchial—caseous—type, often leading to gangrenous processes, but even in such cases I have failed to find caseous centers in the lymph-glands, and have invariably found the previously described swollen and hemorrhagic condition. If Roloff be correct, then the

specific character of these ulcerative, neoplastic conditions must fall to the ground entirely without other argumentation, as they will then be found to occur in two entirely different diseases.

The presence of the different micro-organisms in the two diseases can alone decide this question.

So far as our American swine plague goes, it knocks the bottom out of the theory of the Koch school with regard to the bacilli of tuberculosis being the cause of caseation, and, as I have already shown in another paper—(*Journal of Com. Med.* 1886) it is really due to an incipient weakness in the cells, aided by anæmic conditions.

(*To be continued.*)

THE VETERINARIAN AS A MEMBER OF SOCIETY.

BY D. P. YONKERMEN, Cleveland, O.

As the great human family becomes multiplied and civilization rapidly advances, the demands of life become increased and more complicated; but intelligence, which advances with civilization, redoubles the efforts made to maintain the equilibrium between the growth of populations and the necessary supply of food.

It is these demands which have brought the cultivation of the soil to such perfection—which have reclaimed lands not only barren, but positively injurious, because they were the sources of pernicious maladies and the laboratories of pestilential emanations.

These demands have also perfected and enormously increased in number the domesticated animals so essential to mankind, and it is entirely owing to them that commerce has become so extended between countries as to greatly diminish the chances of the occurrence of those terrible famines which so frequently ushered in the plagues of man and beast.

But on the other hand, as civilization removes or tends to remove the ancient generators of disease, it brings about changes which are not without drawbacks. The more artificial conditions

of life
are fo
ify the
ceptib
corres

It
count
were,
unkno
foot-an
moder
horses
malad
ease, c
tury, v
from t
satisfac
tions o
diseas
parati
ticated

It
ine an
munic
penalt
malad
the m
home
differ
which
adies.
and th
own, c
these,

Tr
human
certain
an ess

of life which are created, and to which the domesticated animals are forced to submit, bring into play new influences, which modify their constitutions in such a manner as to render them susceptible of general maladies of a new type and of a character corresponding to the artificial causes which induced them.

It is only by taking this view of the subject that we can account for the appearance of diseases which a few centuries ago were, so far as present accessible evidence leads us to believe, unknown. For instance, according to all written testimony, the foot-and-mouth disease of ruminants and swine is a comparatively modern affection; so also is the so-called venereal disease of horses; the typhoid fever, cholera or measles of pigs, and other maladies of a similar kind. The variola, a most destructive disease, can be traced no farther back than the ninth or tenth century, while the contagious pleuro-pneumonia of bovines only dates from the middle of the eighteenth century; at least, we have no satisfactory proof to the contrary. Certain exanthematous affections of cattle are also quite modern, and the so-called typhoid diseases of the equine species have been observed only for a comparatively brief period; and so with other maladies of the domesticated animals.

It must not be overlooked that the facilities for averting famine and promoting intercourse which commerce and speedy communication have brought about, are not without their pains and penalties, in exposing countries and states to the introduction of maladies which are foreign to them and which are frequently all the more serious and deadly the farther they travel from their home; for there are diseases of the pestilential kind peculiar to different countries, where they are maintained or generated, and which only appear in other regions as imported or exotic maladies. These belong more particularly to the contagious class, and they may be carried to countries widely separated from their own, owing to the vitality of the contagium, and become fixed in these, to the great destruction of the animals affected by them.

Trade and intercourse are necessary for the welfare of the human family, and man cannot exist without the assistance of certain animals, whose multiplication and improvement constitute an essential feature of civilization.

The dangers to which these animals are exposed, and, through them, the well-being of mankind, can only be averted by an exact comprehension of the diseases to which they are liable—an acquaintance with the various influences which operate to induce, maintain and propagate these diseases, and the establishment of a system of sanitary police efficiently organized and provided with preventive measures based on this knowledge.

The subject of veterinary sanitary science is of the greatest importance to every country. Its importance has, however, been only partially recognized by our Government, and the losses sustained through its neglect, especially in this country, are something appalling.

The fact, pointed out by science, that some of the most destructive of animal plagues can be placed completely under control of man, appears to have been almost or entirely ignored. Consequently no systematic attempt worthy of the name has been made to place restrictions upon the diffusion and destructiveness of some of the diseases with whose mode of extension, at least, we are quite familiar. The measures proposed and carried into execution have been nearly always as futile as they have been vexatious to trade and injurious to the public interests, and they have seldom been devised by those possessing a proper knowledge of the disease to be suppressed.

Having now given a faint outline of the relations of man to the lower animals, and the effects of advanced civilization and domestication on them, I hope to find you in a measure prepared to receive the student of their habits and diseases, both natural and artificial, as a benefactor and servant to the commonwealth of no mean worth.

The duties, and oftentimes grave responsibilities, which will devolve upon him, should entitle him to the consideration of society—for his profession is certainly as ennobling and important to the public weal as that of many other branches of science which I can call to mind requiring zeal, self-denial, scientific skill, and all those high qualities which the votaries of medicine have so frequently displayed.

For of all the profound and mysterious objects which sur-

round
which
most
and d
able c
erns,
yet w
its act
tion a
in the
plexit
to us
ercise
chemi
tion a
So
evanc
they
or the
may
many
thoug
thoug
quent
often
ease
traliz
I
cause
prop
and
A
first
not b
of m
anim
disea
and

round us, the animal body, in its higher development, is that which seems the very essence of mystery and complexity. The most minute and exquisitely elaborate organization is wedded to and dependent upon chemical affinities of an apparently inscrutable character. A wonderful agency—the nervous system—governs, while it is sustained by intricate and obscure processes; and yet we cannot tell the nature nor explain the laws which control its actions. All that is wonderful, beautiful and grand in creation appears to be concentrated in the higher forms of life, but in the closest alliance with obscurity, inexplicableness and perplexity to the inquirer. Diseases the most prevalent and familiar to us are yet hidden in their origin, and evidently in vain we exercise our skill in interrogating the earth, air and water, or the chemical and physical agencies which are everywhere in operation around us.

Some of the causes of disease may be so subtle, and yet so evanescent, that the moment they have produced their effects they may disappear, without our being able to distinguish them, or they may become impotent by assuming another form. Others may be manifest to our senses, but elude our investigation, and many doubtless lurk unseen, unknown, and defy our search. But though the etiologist labors under this great disadvantage, and though his search into the causation of disease must only too frequently be those of a passive observer, yet these researches are often capable of demonstrating the influence of causes on the disease they have developed, and of their capability of being neutralized or rendered less efficient.

In this respect the knowledge we acquire of the nature of causes gives us a means of establishing a system of preventive or prophylactic treatment which must ever form the most valuable and important department of veterinary science.

As the prevention or prophylaxis of disease must hold the first place in medical and sanitary science—and its importance cannot be over-estimated, for its object is to render the development of maladies impossible, and to preserve individuals or masses of animals from their invasion—the suppression or extinction of a disease, when it has become developed, occupies the next place, and is scarcely of less moment than prevention.

To prevent a disease is, to the man of science, to be able to recognize the conditions on which its origin and development depends, and to be competent to submit these conditions to such modifications as will nullify their tendency to produce the morbid conditions or hinder their operation. This necessitates a study of many subjects, and demands the exercise of the highest faculties of the human mind. And the suppression of a spreading disease requires, in addition to this knowledge, an acquaintance with the laws upon which its extension depends, and the best means for counteracting their effects.

But, though possessed of all this knowledge, the sanitarian, from a variety of circumstances, may not be able to utilize it wholly, or even in part, for the public benefit; so that the advantages to be derived from his studies may be partially or altogether lost, unless he can obtain the concurrence and aid of those who are in a position to frame laws and enforce their observance, with a view to applying this knowledge efficiently, and, of course, beneficially.

The assistance of the law-maker has, therefore, to be invoked, and to the political economist or legislator, who must in the first instance draw his inspirations from the sanitarian, preventive medicine, as applied to the domesticated animals, must appear a subject of the greatest moment. To be able to avert the ravages of an impending epizooty, may be to preserve his country from a great crisis; and to suppress a disease which destroys thousands of creatures—more particularly if the agricultural wealth of a State, consisting chiefly of useful animals, constitutes a large portion of its capital—is not only to spare it the direct loss which such a malady causes, but often to relieve it from anxiety and hardship.

For it must be remembered that the majority of the maladies which come under the cognizance of veterinary sanitary science, more or less directly affect every branch of agriculture, and that the damage they cause is not limited to the immediate pecuniary loss and inconvenience attending the inefficiency or death of those affected, but extends to the breeding and multiplication of animals, embarrasses one or more branches of commerce, and gener-

ally i
N
flict,
ence
their
tion,
mals
thus c

A
the a

T
collec
ests o
in thi
mome
diseas

W
cative
invasi
limit
possib
propo
shoul
with
vexati
action
and la
meet
latitud
may b

W
invasi
of a
those
the in
T
a cont

ally injures, to a greater or less extent, the welfare of mankind.

Not only are such diseases formidable by the damage they inflict, but some of them are most serious from the pernicious influence which they may exercise on the public health, either by their transmission to mankind by contact or accidental inoculation, or by the use of the flesh or products of the diseased animals as food. Some of the most dreadful and fatal maladies are thus occasioned.

And now a word concerning the duties and responsibilities of the authorities may not be amiss.

The State, municipal and county authorities should constitute, collectively, an unceasingly vigilant guardianship over the interests of the community; and viewing their important functions in this light, one of their duties, and on occasions one of great moment, is that of protecting it from the ravages of contagious diseases.

When a disease appears in a county, their duty is to act decisively and adopt all necessary sanitary measures to prevent its invading their own localities; or, if it has already done so, to limit or arrest its course and diminish its ravages to the smallest possible dimensions. Their responsibilities are therefore great in proportion as a disease is destructive and dangerous. They should see to it that the measures adopted are uniformly applied with regard to sanitary action, so as to obviate the discreditable, vexatious and injurious results that must arise from disjointed action—extreme rigor in one county, the grossest carelessness and laxity in another. Yet a certain latitude must be allowed to meet the exigencies of particular cases and emergencies; but this latitude imposes on the local authorities responsibilities which may become very heavy at times.

When officially informed of the existence or the apprehended invasion of a contagious malady, their duties are twofold: those of a general kind and in the interests of the community, and those of a particular character and having special reference to the interests of individuals—the owners of animals.

The duties of the veterinary surgeon during the existence of a contagious disease are very important, and his responsibility

may be said to be greater than that of any of those who have to officiate at this crisis. The duties incumbent upon him are those toward himself, his profession, his colleagues, the law, and the authorities.

I will discuss them under their respective heads, beginning with the duties he owes to himself:

The veterinary surgeon owes it to himself to study carefully these contagious diseases, to point out their dangers, and to indicate the best means for suppressing or arresting their progress.

During an epizooty it is the duty of every one, and more particularly of the veterinary surgeon, to bring every available resource to bear in combatting it. This intervention on the part of the latter constitutes his share of social responsibility during the reign of these great public calamities. True, as Reynal justly remarks, "the veterinarian will not receive the applause and acknowledgments of the physician whose devotion and self-denial increase with the toil and danger that is incurred during an epidemic among his own species," but the part the former plays, if more modest, is not the less meritorious.

In tendering his concurrence to the execution of the common task, the great and final aim of which is the welfare of the entire community, he is sure to find in the appreciation and sympathies of his fellow citizens the ample recompense which moves men to strive for the good of their fellow creatures.

The veterinary surgeon has not only the dictates of humanity to inspire him, and which is the sole incentive of the physician, but he has, in addition, those springing from the importance of his task in a monetary point of view.

The national fortune, as far as animals are concerned, is more or less at stake, and also the comforts, nay, the very necessities of life of large numbers of people may depend upon his exertions; the health of mankind may even be, and frequently is, endangered by the outbreak of an animal plague. It is, therefore, a duty he owes to himself to cultivate his intelligence and to maintain those moral qualities which alone can enable him to exercise his professional qualifications with credit to himself and advantage to others. His duties toward his profession are pretty

well summed up in his duties toward himself. Its value and status depends entirely upon the intelligence, zeal and proper conduct of its members. When a man practices a profession which gives him an honorable position in society, and to which he owes his means of subsistence, it becomes an imperative duty, as it should likewise be a grateful acknowledgment of these benefits, to devote himself entirely to its advancement in every legitimate way, and to demonstrate its importance and utility. At no other period, perhaps, can this be so well shown as in the matter of contagious diseases. The veterinary surgeon is, in the controlling of these, in a position to testify to its utility and importance to agriculture and the public in general.

In his duty toward his colleagues it appears to be unnecessary to do more than assert that members of such a profession as that of veterinary medicine should be actuated by the highest principles of equity toward each other. All are bound by the closest ties to forward the interests of their common profession upon which they are all dependent. They should, therefore, be ready to assist each other; their unanimity, mutual respect and confidence are indispensable in so far as the public interests are concerned, and they are necessary in maintaining the honor of their profession. Concord and an absence of unworthy rivalry is required at all times, but particularly when a destructive disease is prevailing.

It is the duty of the veterinary surgeon to consult with his colleagues in times of difficulty and doubt, to communicate to them the results of his observations and labors; to discuss with them, when necessary, important questions; to enable them to profit from his researches, as he should profit from theirs, and, if need be, to publish these for the benefit of the places invaded or threatened by a contagious disease. In this way the members of the veterinary profession may afford most valuable aid in the localities where a malady prevails.

His duties toward the law are to be no less scrupulously observed. He should not be allowed to treat any animal affected with a seriously contagious disease until he has reported its existence to the authorities; and any infraction of the laws he should

be ready to give information of. The share in those measures for the suppression of a contagious disease which he may be called upon to undertake, ought to be strictly and conscientiously carried out, and with sufficient zeal to secure the best results.

As I have before mentioned, when a contagious disease appears in a locality, the authorities should take every possible precaution, and in order to do this must seek the aid of science. In serious outbreaks, where the disease spreads rapidly, and also in cases of lesser moment, the veterinary surgeon will be delegated to prescribe the measures for its suppression. In the performance of such a duty he is bound by every sentiment of honor and justice to devote himself entirely to his mission, which is one of great importance.

According to the nature of the outbreak he will more or less promptly report, to the authorities who have sent him, its chief characteristics, its gravity, and the best means of preventing its extension. In his communication with the owners of animals, however, he must maintain a judicious reserve, and if he prescribes medical treatment or private hygienic measures with regard to suspected or sick animals, he must also remember that he cannot recommend and enforce sanitary measures; to the administration alone belongs the power rendering these obligatory. Those which he may think it necessary to suggest, and, with the owner's consent, to carry into practice, are but provisional until sanctioned by the authorities. The veterinary surgeon is charged by these with the duty of carrying into execution, in healthy or infected localities, the general measures already described; and in order to accomplish his oftentimes delicate task satisfactorily, he should maintain a firm attitude against all interested solicitations and influences, acting with circumspection, guided by his conscience, and never departing from that spirit of deference and conciliation which is so essential in an agent intrusted with such a mission.

In his relations with the authorities the same influences should govern him. His recommendations and suggestions to them should be conceived in a practical spirit, couched in the clearest terms, and devoid of all technicalities which might mislead.

Representations as to the necessity for certain measures should be well founded and the urgency for their adoption brought prominently forward. If they are disregarded, the injurious consequences which may result ought to be pointed out, so as not only to protect himself from blame, but also to warn the authorities of the danger of their supineness or neglect.

Having shown the importance of the veterinary surgeon to a community during the reign of a disease, let us for a few moments consider his minor qualifications and no less important responsibilities.

In doing this I take it for granted that due allowance is made him for the various auxiliary branches of science, such as agriculture, geology, climatic influences, chemistry, botany, etc., without the knowledge of which he would be incompetent to counsel or assist in preventing diseases of a contagious character.

I will consider his position in society while practicing his ordinary avocation. In this he differs very little from the physician, being in every sense a public benefactor and servant, subject to call at all times to relieve some person's animal from distress or injury—ministering to the relief and comfort of the animal kingdom as the physician does to man. This ministering to the dumb brutes, who are unable to make known their feelings or portray their sufferings, and his skill in the preservation of these valuable creatures which man has domesticated, should alone entitle him to no little regard from all humanitarians. If through his skill he is able to relieve the sharp pains and sufferings which at times afflict our lower animals—often being caused by the fault or ignorance of their owners and the enforced, unnatural mode of existence consequent on domestication—he must, it seems to me, constitute a member of society whose services we can ill afford to dispense with. His counsel and advice regarding the management, breeding, care and feeding of domestic animals is often sought by breeders and owners with good results and a saving of time and money. In fact, his presence in a community is so necessary and important that a municipality without a practicing veterinary surgeon is to be pitied indeed.

When we look upon an animal taken away from its fellows

and viewed with regard to the beautiful and wonderful designs of creation as an organic entity, an astonishingly complex living machine, endowed with certain attributes, and whose existence is dependent upon the performance of various functions which are allotted to various organs of suitable material, we must conclude that the study of it in health and disease is worthy of the best endeavors of our most learned and intelligent citizens, and that the profession is worthy of the esteem and regard of all thinking men, of whatever occupation or position, and that instead of the pursuit of such a noble profession acting as a barrier to his entrance into the best society circles, it should of itself be an introduction thereto, as it is at present to all societies of learning and schools of science where merit and ability are recognized without regard to social position or influence.

EXTRACTS FROM FOREIGN JOURNALS.

TREATMENT OF TETANUS BY INTRA-MUSCULAR INJECTIONS OF CHLOROHYDRATE OF COCAINE.

BY A. VILLA.

The subject of the present report was a colt, eighteen months old, suffering under a severe attack of lockjaw, which had been contracted by exposure to a strong, cold draught, ten days after castration. Encouraged by his experience of good results in the use of cocaine in the reduction of an inguinal hernia, the author decided to try it for the relief of the trismus in the present case, and accordingly made two injections of a solution of chlorohydrate of cocaine in each of the masseter muscles, repeating the operation in the evening of the same day, the solution being made with 1 gramm, 20 cent., in 8 grammes of distilled water. A subcutaneous injection of half a gramme of acetate of morphia was also made, with a view to corroborate the effect of the cocaine.

The following morning the muscular stiffness was much diminished, and the animal ate his hay. Two more injections were then made, in the neck, along the sterno-maxillaris muscle, with 2

grammes of cocaine, the operation being repeated three times at intervals of twelve hours.

Two days later, the stiffness of the neck having so far diminished that lateral motion was easily performed, the cocaine was discontinued and was followed by alternate hypodermic injections of curare and of pilocarpine, with the administration of chloral per mouth. Complete recovery soon followed.—*Clinica Veterinaria*.

CASE OF ANURIA FROM RENAL CALCULUS, FOLLOWED BY DEATH.

By G. CAPPELLETI.

The patient in this case was a mare, 14 or 15 years old. She had been subject to repeated attacks of colics, especially after working, but they had usually been relieved by warm emollient fomentations and stimulating frictions over the loins.

The symptoms of the case were: Slight intermittent pains, followed by intervals of quiet, and apparent relief; but there was an absence of urination for twenty-four hours. Vesical and rectal exploration, with abdominal palpation, were negative of results. During two days symptoms of cerebral congestion were present, of indefinite continuance, and throughout that period there was still an entire absence of micturition and defecation, although the bowels were stimulated by active cathartics. Respiration had remained slow (7 to 8 per minute); the pulsation was 50; temperature 37.5°. Benzoic acid, in 1½ gramme doses, was given hourly, accompanied by a purgative of castor and croton oils. A few drops of purulent urine were passed during the night.

On the eighth day she passed into a comatose condition, had a foetid diarrhoea, and on the ninth day the symptoms of uremia began to be more manifest. On the tenth day she died.

At the post-mortem the kidneys seemed normal externally, but being cut into, in their thickness, two calculi were found in the pelves of these organs. That in the right side weighed 20 grammes 7; that in the left, 24 grammes 45. They were elongated, cylindrical, smooth at one end, enlarged at the other, and reddish in color. Both were engaged in the ureters, and thus effectually obstructed the escape of the urine.—*Clinica Veterinaria*.

A PECULIAR FISTULA IN A DOG.

BY M. CURATELLI.

The subject of this paper was bitten by another dog in the left hip, and after the lapse of a year the wound had not yet cicatrized, but was the seat of an abundant purulent discharge. A narrow fistulous tract existed at the region of the wound, about five centimeters long, extending from behind forward, and reaching to the ilium. The granulations being cauterized, the bone was exposed; but expecting a natural sloughing, the author made no attempt to remove the diseased bone. After vainly waiting, however, a few days, he decided to remove it with the forceps. In doing this, instead of bringing out a piece of the ilium, a tooth of the dog that had bitten the patient was taken out. It was inserted point foremost, toward the iliac crest, and was fixed in the ilium, from which, though movable, it was prevented from coming out by the new formation which had partly closed the opening. The wound was dressed antiseptically, and closed entirely in a short time.—*Clinica Veterinaria*.

UNNATURAL COITION—PROLAPSUS RECTI—COMPLICATIONS—RECOVERY.

BY M. BAISSE.

A vigorous stallion had broken loose from his stall and covered a large male mule, and when the animals were separated, the rectum of the mule protruded as the penis of the stallion was drawn from it. The result was a large rectal hernia and prolapsus.

Two days after the accident had taken place, the patient was in good condition, and appeared to suffer but little from his trouble. The hernia protruded under the tail, where it formed a soft, painless, reddish mass, about the size of a child's head. The mucous membrane was thickened, congested, and in places lacerated. Defecation was somewhat difficult, and the feces were dry and flattened. Nests of maggots were found between the folds of the membrane. The prolapsus was reduced and retained in place by a bandage, and frequent lotions of carbolized water were prescribed.

The next day the prolapsus had returned, and the inflammation had assumed a gangrenous character. The tumor was then freely scarified and again returned to its place, and laxatives of sulphate of soda and rectal injections prescribed. The animal made a rapid recovery, and was soon able to resume his work.—*Recueil de Med. Vet.*

TWO CASES OF GOITRE IN THE HORSE.

By M. MASSOT.

According to this author, the extirpation of the goitre is comparatively a simple operation, and is generally followed by radical recovery. The case he first mentions was that of an animal that had a double tumor, of the size of a large base-ball, which interfered with respiration by pressure upon the trachea and the laryngeal nerves. The other was that of a colt whose thyroid glands were assuming threatening dimensions. Both animals were subjected to the same mode of operation. An incision was made on each side of the neck, and the hypertrophied glands being easily enucleated, were twisted and a strong ligature applied at their base. The ablation was made without hemorrhage. A few stitches and simple dressings assisted the cicatrization, which was completed in about a month.—*Recueil de Med. Vet.*

LACERATION OF THE ŒSOPHAGUS.

By M. LAURENT.

The author was called to this case by telegram, the urgency being evident. He found in his patient a valuable brood mare, seven years old. She had never been sick, and was in robust condition. He learned that about a week previous she had had a fall, but showed no signs of having received any injury from the accident. Since then she had been exposed to rainy weather, but had always eaten well. The day previous she was found loose, having with much struggling and great difficulty freed her head from the halter, and since then an enormous swelling had appeared on her neck, and she had refused her food. The swelling occupied the entire length of the neck. The larynx seemed to be

free from enlargement, but was very painful. She carried her head hanging almost to the ground; she was very dull; her pulse was quick and small; the conjunctiva was rather pale; the buccal membrane pale and hot; respiration normal; auscultation also normal.

Conjecturing that the trouble consisted of bruises and pressure upon the neck and its organs, received while the animal was trying to free herself from the halter during the night, and that it was a simple case of subcutaneous cellulitis of that whole region, local applications of vinegar and poultices of common chalk mixed with vinegar were prescribed, with a diet of soft mash and grass. The condition remaining unchanged the next day, blistering of the swelling was resorted to, with apparently good effects. On the third and fourth day, signs of improvement seemed to be present to such an extent that the patient was almost considered to be in a state of recovery, when in the evening of the fourth day, another pressing call by telegram was received. The condition of the animal at this time was most pitiable. Her head was hanging to the ground, and the mouth and nostrils were covered with a dirty-white spumous liquid, of an offensive gangrenous odor, mixed with rejected food as it escaped. The enlargement had considerably increased; the respiration difficult; the head so swollen that the pulse could not be taken at the glosso-facial artery; the temperature reached $40^{\circ}3'$; the respiratory movement was increased, especially on the right side. And the poor animal was evidently hungry, though powerless either to drink or eat.

Fracture either of the trachea or of the larynx was then suspected, and a fatal prognosis was announced. This was verified by the death of the animal, which took place on the second day following. At the post mortem, the inferior face of the œsophagus, at about 25 centimetres from its origin, was found to have suffered a laceration about two inches in length, running through the envelopes, the wounded region bearing an exceedingly ugly aspect. Masticated food was found packed in the œsophagus, from the pharynx to the cardia. The trachea was healthy, but above it and above the œsophagus, between them and the inferior face of the cervical vertebræ, and extending from

the p
foun
of an
throu
Cent.

T
Surg
Apri
C
yards
with
ment

T
single
T
swine

the pharynx to the entrance of the chest, an enormous abscess was found filled with pus mixed with portions of food. This pus was of an infectious odor, and during life had escaped into the pharynx through an abnormal opening in its walls.—*Bulletin de la Soc. Cent.*

ANIMAL DISEASES IN PRUSSIA.

(From the *Central-Blatt für Veterinar Wissenschaften*, No. 48, 1886.)

The following is gleaned from the report of Chief Veterinary Surgeon Dr. Hertwig, on the meat inspection in Berlin, for April, 1885-1886.

Of the 640,655 animals slaughtered in the central slaughter-yards of the city during the year, 3,978 animals were affected with the diseases mentioned below to such a degree of development that the condemnation of the whole animal was necessary :

Tuberculosis	698
Caseous pneumonia.....	2
Erysipelas	172
Icterus—Jaundice	64
Melanose	2
Dropsy.....	35
Insufficient development of the meat.....	40
Loathsome condition.....	57
Bloody condition, bruised, and stuck too late	30
Inflammatory diseases.....	11
Swine plague.....	2
Actinomyces in swine.....	2
Actinomyces in the muscles in swine.....	60
Echinococcus in the muscles.....	7
Cysticercus cellulose	2,587
Trichinosis	143
Calcareous concretions.....	56

3,978

The total number of those with morbid changes, of which single parts and organs were condemned, amounted to 43,899.

Tuberculosis was fixed upon 1,920 beeves, 7 calves, and 2,438 swine.

The degree of development and the spread of the disease in the body of these animals was very diversified. In 183 beeves, 5 calves and 510 swine, it was already general, making the condemnation of the meat necessary, whereas in the remaining cases the affliction was local, and at that time the prevailing opinion was that the transmission of the disease to the human being, upon partaking of such meat, is not to be feared. In these cases the meat was released and the diseased organs condemned. On the whole, 6,329 parts and organs were condemned. Although, as already stated, the transmission of tuberculosis, or the perniciousness of the meat of tuberculous animals, is the prevailing opinion and is supported by the most prominent experts, the same is not correspondingly dealt with everywhere. On the contrary, many examiners decide according to their particular conception. While some consider the consumption of tuberculous animals injurious in every case, and accordingly condemn it, others release such meat, so long as the animal is in well-nourished condition, even when general tuberculosis exists.

In consequence of a difference arising in a special case, the Ministerium of Medical Veterinary Affairs was petitioned for instruction and advice as to the injuriousness or palatableness of meat of tuberculous cattle, whereupon, with the approval of the Minister of Agriculture, the following circular was issued on June 27th, 1886 :

"A condition of the meat of tuberculous cattle is generally then considered injurious to health when the muscles contain tubercles, or if the tuberculous animal shows emaciation, even if there are no tubercles found in the muscles ; while, on the other hand, the meat may be considered palatable if tubercles are present in one organ exclusively and the remainder is still in good condition."

Actinomycose was observed in cattle 21 times, 19 times in the form of jaw swellings, and once in the lungs. In swine this disease was met with twice—once with swellings on the udder and destruction of bones, and once in the form of swellings on the udder only, destroying nearly the whole udder.

The presence of actinomycotic appearances, or suspicious ap-

pearances of actinomycosis, always requires a strict examination of the animal in this direction. As soon as a second affected spot is detected, or the local affection exists in a more aggravated stage, accompanied by putrid decay, etc., we must not hesitate to consider the meat affected and condemn it. As long, however, as the disease appears only locally, existing in a slight degree, and the tissues of the swellings are solid, this measure does not seem to be necessary, according to the present knowledge of actinomycosis.

Of the 143 trichinous swine, 132 were of native breeds, 3 of Russian, 4 of Servian, and 1 of Saxon; 53 times the trichinæ were very numerous, 111 they were capsulated and all alive, 17 times dead and living trichinæ were present at the same time, and 15 times lifeless ones only could be detected. Repeatedly it happened that several swine (5 to 6) which were sold by one and the same dealer were trichinous. Suspecting that these animals came from one farm, requisite researches with the aid of the police authorities were instituted, but in a single instance only was the supposition verified. In other instances the researches proved unsuccessful, because shortly before the sale the swine, in company with others, were found in different hands and their identity too difficult to establish.

As soon as trichinæ in the same earlier stage of development are detected in a number of swine out of one farm, it may be assumed that the source of contagion is to be found on the farm in question, and that other swine kept there are also trichinous. To make these suppositions sure by investigations is of great importance to the public welfare, because thereby it is possible to remove herds affected with trichinæ and to keep the suspicious swine under surveillance until they are slaughtered and examined.

BOOK NOTICES.

DISEASES OF THE ELEPHANT. BY JOHN HENRY STEEL, V.S., A.V.D., M.C.R.V.S.

If veterinary medicine, in its true definition, means that domain of the medical sciences which comprehends the diseases of

all domestic animals, the work which has been written by Mr. John Henry Steel, M.R.C.V.S., upon the diseases of the elephant, will be accepted by veterinarians wherever this animal has been reduced to a state of domesticity, as a book which has been for a long time a necessity. But it is not alone in this character that this little manual of Mr. Steel's recommends itself to favor. It is also as a contribution to the literature of comparative medicine that it is valuable. We have received a copy and have enjoyed its reading, and cordially recommend it to everyone whose peculiar engagements or duties may involve an interest in the subject matter of the treatise. The first part of it treats of the natural history of the elephant, and of its uses as an agency and element in the equipment of modern armies as well as an animal of transport; while the second part, in eleven chapters, makes the reader acquainted with the ailments to which this animal is liable, closing with the therapeutics and uses of medicines which find their principal indications in the treatment of the diseases referred to. The book is printed by Mr. W. H. Moore, at the Lawrence Asylum Press, Mount Road, Madras, India.

VETERINARY SURGICAL PATHOLOGY AND PRACTICAL MEDICINE.

Another Indian book comes to us in the work above named, for which we are indebted to the kindness of the authors, Professor John Burke and Mr. R. W. Burke. It is said to be the first volume, and is illustrated with numerous plates, taken from original drawings and photographs. We offer our thanks to the authors for the compliment, but we are sorry to be obliged to confess our inability to render to the work the justice of a review, on account of a defect in our educational acquirements, which were suspended before we had quite mastered the Hindoo tongue. If we may judge by the headings of some of the subjects, and by the quality of some of the illustrations, we are sure it must be a valuable addition to Hindoo veterinary literature.

CATTLE AND THEIR DISEASES. BY DR. MURRAY, of Detroit, is announced among recent publications, and is highly spoken of by the *Breeders' Gazette*.

EVERY MAN HIS OWN VETERINARIAN. BY G. S. HEATLEY, M.R.C.V.S. is published by the O. Judd Co., of New York.

LIST OF VETERINARY PRACTITIONERS

REGISTERED IN SUFFOLK COUNTY, NEW YORK.

John Andrews, (not regular or college graduate).....	Deer Park
Geo. W. Clock, " " " "	Islip
Geo. Clemence, (25 years practice).....	Blew Point
Walter Downs, Jr., (20 years practice).....	Riverhead
Nicholas A. Downs, 20 " "	Bridgehamton
Max Frankel, 5 " "	Greenport
G. W. Gilbert, (New York Veterinary College).....	Bayport
Adolph Gierasch, (3 years practice).....	Riverhead
Henry Hallock, 18 " "	Bridgehamton
Joseph R. Hammond, (American Veterinary College).....	Port Jefferson
R. C. Jones, " " " "	Port Jefferson
John Lindsay, (Columbia Veterinary College).....	Huntington
Herbert W. Law, (6 years practice).....	Riverhead
Wm. W. Nicoll, 10 " "	Southampton
Jeffrey Smith, 5 " "	Greenport
Chas. Smith, Jr., 20 " "	Patchogue
C. W. Sperry, 5 " "	Babylon
Geo. Ticehurst, 3 " "	Bayshore
Geo. C. Wells, 25 " "	Southold
Robert Waters, 10 " "	Mattituck
Ed. L. Waters, 10 " "	Jamesport
John Williams, (colored, 5 years practice).....	Smithtown

NEWS AND SUNDRIES.

STATE VETERINARIAN TO IOWA.—Gov. Larrabee, of Iowa, has re-appointed Prof. M. Stalker State Veterinary Surgeon.

AN ENGLISH APPRECIATION.—The AMERICAN VETERINARY REVIEW for April; Vol. XI. No. 1. Edited and published by Prof. L'autard, M.D., V.S. (Holt Brothers, 119 Nassau Street, New York), price 50 cents. We Britishers may say what we choose, but there is no question, as veterinary practitioners, we are about half a century behind our transatlantic brethren if we may judge from the very excellent literature they supply us with.—(*The Veterinary Review*.)

NEW VETERINARY ASSOCIATION.—About fifteen veterinary surgeons met at the Kirby House, Milwaukee, April 13, to take the preliminary steps necessary towards incorporating their State

association. There were present from outside the city: E. S. Mason, Beaver Dam; S. J. Moore, Oshkosh; C. Loftus Martin, Janesville; R. C. Whitecomb, Monroe; T. H. Nicholson, Oconto; Frank Hall, Merton, and J. Q. Smith, Madison.

A law recently passed by the Legislature to regulate the practice of veterinary surgery made it necessary for the State Veterinary Association to have a legal standing and requiring its incorporation.

NO PLEURO-PNEUMONIA IN MINNESOTA.—In reply to the report that a fatal disease had made its appearance among cattle in some portions of Minnesota, which it was feared was pleuro-pneumonia, Dr. Hewitt, of Red Wing, secretary of the State Board of Health, states that there is not a case of this disease in the State, and he does not understand how such a rumor was started.

QUITE APROPOS.—Doctor's office, St. Louis. Enter a lady with a sick dog. "My dear Dr.—, you must not be angry with me, but won't you please cut off this tumor on poor Fannie's flank?" "Well madam, I would do anything to oblige you, but this is a little out of my line. Why don't you take your dog to a veterinary surgeon?" "But, doctor, those veterinaries are so expensive. I supposed you could do it just as well."—*St. Louis Republican*.

A COLT WITH THREE EYES.—We doubt if the colt below described could open its three eyes much wider than the one who reads his description, as given in the *Prescott Hoof and Horn*: Col. Chas. W. Beach is the owner of a two-weeks-old colt, foaled from a fine brood mare, the sire being an imported Percheron. Its peculiar features are three eyes, two of which occupy the usual locality in the head, while the third is placed midway between them. The eyes are all endowed with vision, and the only apparent difference between them is that the middle one is much the largest, while the other two are of normal size. Each eye is in possession of an upper and lower eyelid, delicately fringed with eyelashes, but while the two in the customary locality diminish gradually towards the outer edges of the head, the lids belonging to the middle eye look, when closed, like the segments of a circle.

In addition to these three eyes, the colt sports a double set of nostrils, both of which are perfectly defined, and in breathing, each set appears to work in harmony with the lungs. Aside from these features, the colt is well shaped, and in a very healthy condition.

STATE VETERINARIAN OF MISSOURI.—The Legislature of Missouri failed to pass the bill establishing the office of State Veterinarian and providing for the appropriation of \$2,000 for the support of the same. The Senate of the Kansas Legislature failed to confirm the nomination of Dr. Holcombe, as State Veterinarian, and we understand, the appropriation passed was too small to provide for the expense of keeping a State Veterinarian in active service.

LONGEST REPORTED PERIOD OF GESTATION IN A MARE.—Mr. Z. T. Moore, of Traer, Ia., writes, that Mr. Thomas Green, of that place, has a pony mare that dropped a mare foal after a well-authenticated period of gestation reaching twelve months and twelve days. The colt is said to be bright and strong.

NEW APPOINTMENTS.—Dr. F. H. Parsons, D. V. S., has been appointed assistant veterinarian to Montana. Dr. J. Walrath, D. V. S., and Dr. W. Devoe, D. V. S., have been appointed inspectors to the Bureau of Animal Industry.

REGULATING VETERINARY PRACTICE IN ILLINOIS.—A bill was introduced in the Legislature to compel veterinary surgeons before practicing in Illinois to secure a certificate of their profession and skill from some veterinary college. The bill did not reach surgeons who have practiced five years at the time of its going into effect.

"AEROBIC" AND "ANAEROBIC."—A suggestive idea, which has not yet led to any definite results, has been taken up by M. Arloing, and concerns an attempt to learn more of the nature of infective diseases by the aid of chemical physiology. The aerobic microbe, it is believed, would live at the expense of the oxygen of the blood, and we should consequently expect that this would show itself in the form of alterations in the quantity and quality

of the chemical substances discharged from the body. It has been found that the amount of carbonic acid discharged from the lungs in cases of charbon and gangrenous septicæmia diminishes during the whole course of the fever, and especially towards its termination. This diminution in the discharged carbonic acid appears to have begun soon after the inoculation of the poison in the case of charbon; whilst in the case of gangrenous septicæmia, for some hours after the inoculation the quantity of carbonic acid exhaled was increased. It is believed that this difference in the amounts of carbonic acid discharged during the hours immediately following inoculation is to be attributed to the difference between aerobic and anaerobic organisms.—*London Lancet*.

VETERINARY EXAMINATION OF STALLIONS.—The English Cart Horse Society has settled the important question of ascertaining the soundness of stallions in a plain common-sense manner, worthy of a society instituted for the purpose of improving the breed of cart horses. By condition 10, "a veterinary surgeon will attend at the show to inspect all animals before the judges make their final award; and no award will be made to any animal which is not free from disease detrimental to breeding sound and healthy stock." Under this condition, a customer for purchasing or hiring any stallion exhibited at the Cart Horse Show may depend that all the stallions passed by the veterinary referees, whether winners of prizes or not, are sound.—*Medical and Surgical Review, London*.

THE ACTUAL CAUTERY AND THE THERMO-CAUTERY.—Of late cauterization has been performed by means of the thermo-cautery, but this practice is not so good as the one which it displaced. First, platinum requires a much higher temperature to redden it than iron, the consequence of which is that the thermo-cautery produces a much more severe burn than the iron cautery, the parts touched being burned to the fourth degree, and the heat radiating beyond them. Consequently elongated burns are produced, which leave indelible cicatrices. Secondly, the pain produced is very severe, while patients bear a repetition of the actual cautery with little or no fear.—*Ibid*.

D
reality
contin
allowe
—the
we ha
tracts
substa
Dr. Pe
OF TH
islatur
luck n
UNITE
sion of
the me
for the
sweepi

M
we ap
hensi
ing to
the of
exper
simply
tion a
truly
way t
dranc